REMARKS

Claims 1-29 are pending in the application. Claims 1-11 are withdrawn and claims 12-29 stand rejected. Claims 12, 22 and 23 have been amended and claims 19, 20, 21 and 29 have been canceled without prejudice.

Elections/Restrictions

Notwithstanding the finality of the restriction requirement, Applicants respectfully request that claims 1-11 be maintained in the current application. The Examiner contends that the elected inventions 12-29 are classified in class 438 and that the non-elected claims are classified in a different class 257 and, as such, the search for the non elected and elected inventions is "not coextensive". However, it appears that such contention is belied by the information contained in form PTO-892 attached to the Office Action where it appears that a search was performed in both classes 257 and 438 and that elected inventions were rejected based on cited art from class 257. In particular, it appears that the search is indeed coextensive or that at the very minimum, references of relevance, if any, are commonly classified in the cited classes 257 and 438. In this respect, Applicants urge that all claims be maintained in the application.

Claim Rejections 35 U.S.C. §112

Claim 22 has been amended to provide sufficient antecedent basis. Accordingly, withdrawal of the rejection is requested.

Claim Rejections - 35 U.S.C. §103

The following obviousness rejections are asserted:

(i) Claims 12-15, 17, 19 and 21-28 stand rejected as being unpatentable over Brintzinger in view of Jin for the reasons set forth on pages 3-6 of the Office Action.

(ii) Claims 16, 18, 20, 26 and 29 stand rejected as being unpatentable over Brintzinger in view of Jin and further in view of Barth for the reasons set forth on page 6 of the Office Action.

With respect to rejection (i) above, Applicants respectfully submit that at the very least, claims 12 and 23 are patentable and non-obvious over the combination of Brintzinger and Jin . For example, the cited combination does not disclose or suggest a method for forming an interconnection structure *by forming a first solderable layer comprising Cu; forming a diffusion barrier layer comprising CoWP over the first solderable layer, and forming a second solderable layer of Ni over the diffusion barrier layer*, as essentially recited in claims 12 and 23.

Applicants have discovered that a CoWP diffusion barrier layer is virtually a perfect barrier to the diffusion of Cu atoms from the first solderable layer into a Ni second solderable layer, thereby preventing the generation of voids in the Cu. (See, e.g., Applicants' Specification at page 5, lines 10-20, for example).

In contrast, Britzinger teaches the use of an Ni layer (5) diffusion barrier formed on, and in direct contact with, a Cu interconnect (4) (see, e.g., FIG. 4, FIG. 6). This actually teaches away from the claimed inventions, as the claimed inventions utilize a barrier layer between Ni and Cu. Therefore, the combination of Brintzinger and Jin is seemingly deficient to establish a prima facie case of obviousness against claims 12 and 23 (as well as claims 13-15, 17, 22 and 24-28, at least by virtue of their dependence).

With respect to rejection (ii) above, in view of the deficiencies of Brintzinger and Jin as applied to claims 12 and 23, the obviousness rejections are seemingly rendered deficient on their face, as claims . Although Barth discloses the use of CoWP as a capping layer for Cu, there is no suggestion in Barth to use CoWP as a diffusion barrier interposed between Cu and Ni solderable layers of a solder bump interconnection structure. Accordingly, withdrawal of the obviousness rejections is respectfully requested.

Respectfully submitted,

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